

VII.—*Notes on Emballonura, with Descriptions of new Species.* By OLDFIELD THOMAS.

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Just as in their close allies the American Sac-winged Bats (*Saccopteryx*, &c.), the members of the Old World genus *Emballonura* present very definite characters in the basal region of the skull, and especially in the structure of the "basial" fossæ\*. These fossæ are always large, but vary in depth; they occupy the area between the basilar suture and the mesopterygoid fossa, from which they are separated by a saddle-backed convexity level with the back end of the pterygoids. On the floor of the fossæ are a variable number of low ridges or septa, whose presence, absence, or position afford good specific characters.

*Emballonura sulcata*, Mill.

Of this fine species the British Museum contains an example from Ponapé, Carolines.

Its smaller ally, *E. semicaudata*, occurs in the New Hebrides, Fiji, Tonga, and Samoa groups. Also in Rotuma, some way to the north of the Fijis.

Both these species have a single broad median septum in the basial fossa, but no lateral septa.

*Emballonura atrata*, Pet.

In spite of its great geographical isolation, this species is in all respects a true *Emballonura*. Its occurrence in Madagascar gives to the range of the genus *Emballonura* a great resemblance to that of *Pteropus*, its eastward extension being also almost exactly the same. But it does not extend so far north or south.

*Emballonura meeki clavium*, subsp. n.

Similar to the typical form in size and other external characters, including the shape of the tragus and the characteristic expanded lobate lips. But in the skull there are certain differences in the mesopterygoid and basial region.

\* These fossæ, which are present in most Microchiroptera, have sometimes been called "basisphenoid" and sometimes "basioccipital." As a rule, they are more largely in the basisphenoid bone, but they extend in many forms considerably into the basioccipital. Under these circumstances, they might be simply and conveniently called "basial" fossæ.



Thus the mesopterygoid fossa is markedly shorter, the distance from the palation to the saddle-back convexity at its hinder end 1.1 mm., as compared with 1.6 mm.; it does not open quite so far forward, and the openings into the nasal chamber are not so large and the ethmoid bones are consequently less exposed. In the basial fossa, the median septum, which in *meeki* is represented by a broad low elevation, slightly grooved mesially and only running half across the fossa, consists of two low but quite distinct ridges, running back, slightly divergent, quite to the back of the fossa. In all other species, the median septum, if present, is truly median and without tendency to split into two. As in *E. meeki*, the whole fossa is rather shallow, narrow, without lateral septa or antero-lateral extensions.

Dimensions of the type (the italicized measurements taken in the flesh):—

Forearm 39 mm.

Head and body 38; tail 12; ear 13; lower leg and foot (c. u.) 23; calcar 16.

Skull: greatest length to front of canine 12.4; condyle to front of canine 11; breadth across facial swellings 5; mastoid breadth 7.4; front of canine to back of  $m^3$  4.5.

Hab. Kei Islands. Type from Ara.

Type. Adult female. B.M. no. 10.3.1.34. Original number 855. Collected July, 1909, by W. Stalker.

Like as *meeki* and *clavium* are in all other respects, the skull-differences described above are constant through three specimens of one and five of the other. But an example from the Owen Stanley Range, New Guinea, is somewhat intermediate in character as in locality, and I therefore only distinguish the new form as a subspecies.

#### *Emballonura beccarii*, Pet. & Doria.

Judging by a drawing of the tragus of the type, kindly sent me by Dr. Gestro, I am inclined to think this will prove to be a synonym of *E. raffrayana*, Dobs., a species described after the publication of Dobson's Catalogue, and not mentioned in Peters and Doria's description. The typical localities of the two are quite near each other.

#### *Emballonura stresemanni*, Thos.

Of this species the Museum contains, besides the typical series, a number of specimens collected by the late Mr. W. Stalker in Ceram, during the B.O.U. New Guinea expedition. It has the same broad oblong tragus as *E. raffrayana*, Dobs., as is also the case with the following.



*Emballonura cor*, sp. n.

Tragus and ears as in *stresemanni*. Basial pit heart-shaped, with three septa.

Size about as in *E. raffrayana*. Colour Mars-brown, slightly paler below. Ears narrowed terminally, as in *stresemanni*, not broad as in *raffrayana*. Tragus broad, its breadth about half its length on inner margin, its inner edge straight, its outer slightly concave.

Skull of the same general shape as in *raffrayana*, but rather narrower. Frontal region with a similar mesial groove between the moderate facial inflations. No sagittal crest in the type, which is fully adult. Opening of posterior nares level with the lateral edges of palate, not contracted anteriorly, its edge bi-concave, with distinct median point. Mesopterygoid fossa long, its saddle-backed convexity low, grooved mesially. Basial pit large, deep, sharply defined, extending antero-laterally in front of the back of the mesopterygoid fossa in two rounded lobes, separated from the main part of the pit by low secondary septa; a well-marked mesial septal ridge present.

Teeth as in *E. raffrayana*, except that the inner lobe of  $p^4$  has a less strongly developed anterior angle.

Dimensions of the type (taken on the dry skin):—

Forearm 38 mm.

Tragus on inner edge 2·8; third finger, metacarpus 32·5, first phalanx 9·3; lower leg and hind foot (c. u.) 22; calcar 10.

Skull: length from condyle to front of canine (c.) 12\*; breadth across facial inflations 5·8; front of canine to back of  $m^3$  5;  $m^1$  and  $m^2$  combined 2·3.

*Hab.* Choiseul, Solomon Is.

*Type.* Adult skin. B.M. no. 5. 1. 28. 2. Collected by A. Meek.

This species is readily distinguished from *E. raffrayana* and *stresemanni*, the only forms with the same broad oblong tragus, by its peculiarly shaped basial pit; from the former also by its narrow ears and from the latter by the distinct lateral septal ridges in the basial pit.

*Emballonura monticola*, Temm.

In *E. monticola* the basial pit is large, rounded, but rather shallow, without deep or sharply defined limits. It has normally distinct median and lateral septal ridges, dividing it into four portions, but the lateral ones tend to be reduced or obsolete in the eastern race (*discolor*).

\* Brain-case distorted.



From S. Tenasserim to the Kei Islands I do not see any diversity which I should consider of specific value, but three races, characterized by size, appear recognizable as subspecies :—

Firstly, the typical *monticola* (type-locality, Java), ranging from the Malay Peninsula to Borneo, the smallest of the three, with an upper skull-length (occiput to nasal notch) about 12·8–13 mm., and the maxillary tooth-row about 5·0–5·4 mm. Both Miller's *E. peninsularis* and Lyon's *E. pusilla* seem to fall within the range of variation shown by the specimens before me. *E. anambensis* from the Anambas Is.\* I do not know, but an *Emballonura* from Natuna quite agrees with Javan *monticola*.

Secondly, a very large form found in Borneo only, with upper skull-length about 14·5 mm. and maxillary tooth-row 6 mm. This is the form taken as representing *monticola* by Lyon when describing *pusilla*, but it far exceeds Javan examples of that species. Detailed measurements of it are given below.

Finally, an eastern race may be distinguished, *E. m. discolor*, Peters, ranging from Luzon, presumably through Celebes, to Amboina, Ceram, and the Kei Islands. It is intermediate in size between the other two, and has the lateral septa of the basal pit rather frequently absent.

*Emballonura monticola rivalis*, subsp. n.

Like true *monticola* throughout, but size larger. Bases of body-hairs whitish, as usual.

Dimensions of the type (measured on the spirit-specimen) :—

Forearm 48 mm.

Head and body 44 ; tail 14 ; third finger, metacarpus 43, first phalanx 14 ; lower leg and hind foot (c. u.) 26·5 ; calcar 15.

Skull : occiput to anterior base of canine 15·3 ; occiput to nasal notch 14·5 ; condyle to front of canine 13·8 ; zygomatic breadth 9·5 ; facial breadth 6 ; mastoid breadth 7·7 ; front of canine to back of  $m^3$  6 ; combined length of  $m^1$  and  $m^2$  2·5.

*Hab.* Borneo. Type from Bida, Sarawak.

*Type.* Adult male in spirit. B.M. no. 3.11.2.2. Collected and presented by Cecil J. Brooks, Esq. Three specimens, and others collected in Sarawak and N. Borneo by A. Everett.

\* Said to be distinguished by the absence of the usual white bases to the hairs. Size about as in *E. m. discolor*.



Thomas, Oldfield. 1915. "VII.—Notes on Emballonura, with descriptions of new species." *The Annals and magazine of natural history; zoology, botany, and geology* 15, 137–140. <https://doi.org/10.1080/00222931508693620>.

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